HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
RADIO AND TELEVISION

ORIGINAL FILE

ROBERT L. HAMMETT, P.E.
EDWARD EDISON, P.E.
Consultants to the Firm

WILLIAM F. HAMMETT, P.E.
HARRISON J. KLEIN, P.E.
DANE E. ERICKSEN, P.E.
GERALD E. SPILLMAN, P.E.
GERHARD J. STRAUB, P.E.
STANLEY SALEK
NATHAN HAMILTON

December 11, 1992

Ms. Donna R. Searcy
Secretary
Mail Stop Code 1170
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Dear Ms. Searcy:

Enclosed is an original and four copies of the Hammett & Edison comments to MM Docket 92-259, *In the Matter of Implementation of the Cable Television Consumer Protection and Competition Act of 1992, Broadcast Signal Carriage Issues.* The comment deadline is January 4, 1993, so these comments are filed timely.

Sincerely,

Dane E. Ericksen

jk
Enclosures (5)

cc: Dr. Roy Eric Xavier, City of Richmond (w/encl.)
Mr. Richard Esposto, SMCTC (w/encl.)
Mr. James Webb, Jr., City of Sunnyvale

Telephone:
(415) 342-5200 San Francisco
(202) 396-5200 DC • (415) 342-8482 Facsimile

Mail:
Box 280068
San Francisco, California 94128-0068

Shipping:
1400 Rollins Road
Burlingame, California 94010-2304

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Implementation of the Cable Television Consumer Protection and Competition Act of 1992	)	MM Docket No. 92-259
	)	
	)	
Broadcast Signal Carriage Issues	)	

To: The Commission

COMMENTS OF HAMMETT & EDISON, INC.

Hammett & Edison, Inc., Consulting Engineers, respectfully submits its comments in the above-captioned proceeding relating to carriage of broadcast signals by cable television systems. Hammett & Edison, Inc. is a professional service organization that provides consultation to commercial and governmental clients on communications, radio, television, and related engineering matters.

HAMMETT & EDISON EXPERIENCE IN CABLE TELEVISION MATTERS

Hammett & Edison has had extensive experience in cable television technical matters, including evaluation of competing franchise bids, verification of performance of newly-built and re-built cable television systems, drafting of municipal cable television technical standards, and similar cable-related engineering projects. Recent clients have included the Attorney General of Washington (*State of Washington vs. TCI Cablevision of Washington, Inc.*); County of Contra Costa, California; Town of Los Gatos, California; County of Marin, California; Town of Monte Sereno, California; City of Pacifica, California; City of Palm Desert, California; City of Richmond, California;

City and County of Sacramento, California; City of San Jose, California; City of Sonora, California; City of Sunnyvale, California; and the United States District Court, Eastern District of California (*Sierra East Television vs. WestStart Cable Television*).

In addition, Senior Engineer Dane E. Ericksen, P.E., was formerly an FM/TV/CATV Specialist with the Field Operations Bureau of the Federal Communications Commission, from 1974 to 1982. During this period Mr. Ericksen built and operated the Western FM/TV/CATV Enforcement Unit, a 7-ton truck equipped to make detailed technical measurements on cable television systems. Mr. Ericksen had responsibility for conducting all cable television technical measurements, or "proofs of performance", for the Commission in the Western United States.

In 1969, Hammett & Edison petitioned the Commission to adopt technical standards for cable television systems.[1] That petition for rule making resulted in MM Docket 18894, and the Commission's first set of cable television technical standards.

Hammett & Edison, Inc. therefore asserts that it has extensive experience and technical knowledge of cable television performance measurements, and is well qualified to comment on how cable television technical parameters affect picture quality.

---

1 *Petition for Institution of Rule Making Proceeding to Establish Standards Governing the Technical Performance of Community Antenna Television Systems*, dated November 14, 1969, and filed on November 19, 1969. This filing resulted in RM-1530 and Docket No. 18,894, *In the Matter of Amendment of Subpart K of Part 74 of The Commission's Rules and Regulations with Respect to Technical Standards for Community Antenna Television Systems*. A Report and Order was adopted on February 2, 1972, establishing the Commission's first set of cable television technical standards. The effective date for the new technical standards was March 31, 1972.

PICTURE QUALITY

Section 614(b)(4)(A) of the Cable Television Consumer Protection and Competition Act of 1992 ("Cable Act") requires that the signals of local commercial television stations shall be carried without "material degradation". Similarly, Section 615(g)(2) of the Cable Act requires that cable operators provide qualified local Non-Commercial Educational (NCE) television stations to be carried without material degradation. Hammett & Edison believes that carriage "with material degradation" should be considered to exist if the picture quality of a cable signal viewed at any downstream test point or subscriber tap, as compared with the picture quality of that same cable channel as received at the headend, is degraded by two or more TASO[2]

---

[2] TASO is an acronym for Television Allocations Study Organization which was the industry group advising the FCC in 1959 on the technical principles which should be applied in television channel allocations. The TASO ratings of picture qualities are as follows:

TASO	1	Excellent The picture is of extremely high quality, as good as you could desire.
TASO	2	Fine The picture is of high quality providing enjoyable viewing. Interference is perceptible.
TASO	3	Passable The picture is of acceptable quality. Interference is not objectionable.
TASO	4	Marginal The picture is poor in quality and you wish you could improve it. Interference is somewhat objectionable.
TASO	5	Inferior The picture is very poor but you could watch it. Definitely objectionable interference is present.
TASO	6	Unusable The picture is so bad that you could not watch it.

units. Hammett & Edison believes this is a conservative criteria for "material degradation". Any cable system that introduces a 2-TASO step degradation in picture quality solely as a result of carriage on the distribution portion is certainly failing to carry the signal "without material degradation".

TASO PICTURE QUALITY RATING SCALE

Although the TASO scale is subjective, Hammett & Edison has found it to be an effective tool, even when persons with opposing interests view the same picture. Typically different persons will estimate picture quality within one-half TASO unit of each other. The Commission has referred repeatedly to the TASO scale in the March 4, 1992, Report and Order to MM Docket 91-169, thus re-affirming the usefulness of this 1959 picture quality rating system.[3] Hammett & Edison believes that it is now time for the TASO scale to be written into Part 76 of the FCC Rules and Regulations, so as to be conveniently available to all parties and to encourage its use.

While the more stringent cable television technical standards recently adopted by the Commission in MM Docket 91-169[4] certainly *help* ensure that good quality signals will be provided to the subscriber, a "carriage without material degradation" clause is still important because of the Commission's failure to adopt a visual depth of modulation standard for cable signals which have been demodulated and remodulated at the cable headend, or in a baseband-type set top converter. The lack of a standard for visual depth of modulation of NTSC television signals re-modulated by a cable operator is a major loophole in the Commission's new technical standards. This omission is serious because most modern-day cable television systems re-modulate a

[3] Docket 91-169 Report and Order, at Paragraph 38.
[4] In the Matter of *Cable Television Technical and Operational Requirements.*

majority of the signals they carry. A cable channel with an improper visual depth of modulation could still meet all of the Commission's more stringent technical standards and yet fail to deliver pictures "without material degradation." Only the adoption of a catch-all "carriage without material degradation" requirement will ensure that a good quality signal is actually delivered to the cable subscriber.

VISUAL DEPTH OF MODULATION STANDARD STILL NEEDED

Although several cities[5] filed comments to MM Docket 91-169 urging the Commission to adopt a depth of modulation standard, the Commission chose not to do so earlier this year, on the grounds that it did not believe improper depth of modulation to be a significant problem. Based upon its extensive experience, Hammett & Edison believes that the Commission erred in choosing not to adopt a visual depth of modulation standard for cable television systems. Hammett & Edison believes that picture quality degradations caused by improperly set visual depth of modulation is a far more serious risk to subscriber picture quality than are the color performance standards of differential phase, differential gain, and group delay, which the Commission found justified in adopting in MM Docket 91-169. It makes little sense to worry about "second-order" causes of picture degradation when a "first-order" threat to picture quality has no FCC standard for *cable television systems.* The Commission could easily close this loophole by adding the following to Section 76.605(a) of its Rules:

[5] City of Richmond, California; City of Sunnyvale, California; and the Sacramento Metropolitan Cable Television Commission, representing the cities of Sacramento, Folsom, and Galt, California, and Sacramento County, California.

Section 76.605(a)(12) Cable television systems that remodulate an NTSC television signal, either at the headend or in a set top converter, shall maintain the visual depth of modulation as specified in Sections 73.682(a)(12) and 73.682(a)(13) of this Chapter.

Hammett & Edison believes that extending the applicability of Section 73.682(a)(12), which requires that the blanking level be maintained at 75% ±2.5% of peak carrier level, and Section 73.682(a)(13), which requires that the reference white level of the luminance signal be maintained at 12.5% ±2.5% of peak visual carrier level, would be entirely appropriate and reasonable. Unlike improper aural modulation levels, which, while annoying to the cable subscriber, can easily be corrected by adjusting the receiver volume control, the effects of improper visual depth of modulation cannot be easily corrected by a cable television viewer. Visual *under*modulation would require increasing the contrast and brightness settings of the subscriber's television receiver, parameters not normally included in front-panel or remote control adjustments. Visual *over*modulation can result in an extremely annoying "sync buzz" in the aural signal when scenes containing high white level are broadcast, as a result of carrier cutoff. The cable television subscriber has no practical method of correcting either problem at the television receiver.

APPLICABILITY OF TECHNICAL STANDARDS TO CARRIAGE OF RETRANSMISSION CONSENT SIGNALS

At Paragraph 59 of the Notice of Proposed Rule Making, the Commission asks for comment on whether its general cable television technical standards should apply to cable carriage of retransmission consent signals. Hammett & Edison believes the answer is "yes, of course!". First, the cable television subscriber will not know, or

probably care, whether a particular signal in the cable channel lineup is a retransmission consent signal; the cable subscriber will rightly expect good quality pictures on all cable channels. Second, a television station with sufficient market "clout" to warrant payment for carriage rights still has an interest in seeing that its signal is faithfully delivered to each subscriber, in full compliance with all of the Commission's technical standards, and without "material degradation". Although Hammett & Edison believes that any cable operator which finds itself in the position of having to pay a television broadcast station for carriage rights also has an incentive to ensure high quality carriage, we see no reason to exempt retransmission consent signals from any of the cable television technical standards.

Respectfully submitted,

Hammett & Edison, Inc.

By _____
William F. Hammett, P.E.
President

By _____
Dane E. Ericksen, P.E.
Senior Engineer

December 10, 1992

Hammett & Edison, Inc.
Consulting Engineers
Box 280068
San Francisco, California 94128
(415) 342-5200